Comparisons of Job Characteristics

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Soil and Plant Scientists (19-1013)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 80

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Soil and Plant Scientists (19-1013)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Biology	3.7	18.5	24.1	>>	Current knowledge level is likely more than sufficient
English Language	11.2	16.7	16.6	0	Current knowledge level may be sufficient
Chemistry	4.8	16.0	15.2	0	Current knowledge level may be sufficient
Mathematics	9.2	16.0	12.8	<<	Extensive education and/or training may be required
Food Production	2.1	13.1	3.5	<<	Extensive education and/or training may be required
Geography	3.9	12.6	4.0	<<	Extensive education and/or training may be required
Communications and Media	5.3	11.0	6.8	<<	Extensive education and/or training may be required
Physics	4.3	10.0	6.2	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 95

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Soil and Plant Scientists (19-1013)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	16.0	17.0	0	Current skill level may be sufficient
Reading Comprehension	10.7	15.2	15.5	0	Current skill level may be sufficient
Speaking	10.8	14.8	12.3	<	A higher skill level may be required

Judgment and Decision Making	9.4	13.8	12.4	<	A higher skill level may be required
Complex Problem Solving	9.1	12.8	11.5	<	A higher skill level may be required
Systems Analysis	6.5	11.8	10.6	<	A higher skill level may be required
Systems Evaluation	6.4	11.1	9.9	<	A higher skill level may be required
Mathematics	6.2	10.6	11.0	0	Current skill level may be sufficient
Operations Analysis	5.0	9.4	8.8	0	Current skill level may be sufficient
Programming	2.2	5.1	4.7	0	Current skill level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Soil and Plant Scientists (19-1013)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Inductive Reasoning	10.2	15.1	18.0	>	Current ability level is likely sufficient
Deductive Reasoning	10.6	14.7	15.7	0	Current ability level may be sufficient
Speech Clarity	10.2	13.8	9.8	<<	Extensive improvement in abilities may be required
Originality	7.6	13.7	12.5	0	Current ability level may be sufficient
Category Flexibility	9.0	13.3	16.0	>	Current ability level is likely sufficient
Information Ordering	9.9	12.3	13.9	>	Current ability level is likely sufficient
Fluency of Ideas	7.6	12.2	12.8	0	Current ability level may be sufficient
Far Vision	7.8	11.2	9.5	<	Some improvement in abilities may be required
Number Facility	6.3	10.7	11.0	0	Current ability level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Soil and Plant Scientists (19-1013)

Work Activities	Exclusivity of Activity
Adhere to safety procedures	12
Advise clients or customers	19
Advise governmental or industrial personnel	28
Analyze biological research, test, or analysis data	70
Analyze scientific research data or investigative findings	27
Classify plants, animals, or other natural phenomena	69
Collect scientific or technical data	30

Collect statistical data	47
Communicate technical information	4
Conduct analyses or tests of organic compounds	71
Conduct field research or investigative studies	52
Conduct laboratory research or experiments	57
Conduct standardized qualitative laboratory analyses	62
Conduct standardized quantitative laboratory analyses	62
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop scientific or mathematical hypotheses, theories, or laws	62
Develop tables depicting data	33
Direct and coordinate scientific research or investigative studies	27
Direct implementation of new procedures, policies, or programs	60
Examine biological or other material specimens under microscope	73
Explain complex mathematical information	30
Follow microbiology procedures	74
Isolate and identify micro-organisms	82
Make decisions	24
Make presentations	13
Perform statistical analysis	71
Plan scientific research or investigative studies	48
Prepare biological specimens for examination	84
Prepare reports	8
Prepare technical reports or related documentation	22
Recognize plant diseases	72
Recommend further study or action based on research data	60
Record test results, test procedures, or inspection data	48
Resolve agricultural production problems	84
Resolve engineering or science problems	46
Use biological research techniques	68
Use biological testing instruments	73
Use chemical testing or analysis procedures	54
Use computers to enter, access or retrieve data	3
Use knowledge of investigation techniques	16
Use laboratory equipment	60
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use microscope	71
Use plant disease control techniques	75
Use pollution control techniques	62
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21

Use spreadsheet software	18
Use word processing or desktop publishing software	17
Write business project or bid proposals	48
Write research or project grant proposals	33
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 84

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Soil and Plant Scientists (19-1013)

Tools and Technologies	Exclusivity
Cameras	2
Chemical evaluation instruments and supplies	10
Chromatographic measuring instruments and accessories	16
Computers	1
Content authoring and editing software	1
Data management and query software	1
Electrochemical measuring instruments and accessories	9
Gas analyzers and monitors	10
General laboratory glassware and plasticware and supplies	13
Industry specific software	1
Information exchange software	1
Laboratory baths	24
Laboratory centrifuges and accessories	13
Laboratory electrophoresis and blotting system and supplies	26
Laboratory enclosures and accessories	17
Laboratory environmental conditioning equipment	24
Laboratory heating and drying equipment	13
Laboratory incubating equipment	20
Laboratory mixing and stirring and shaking equipment and supplies	19
Laboratory ovens and accessories	15
Light and wave generating and measuring equipment	4
Sampling equipment	12
Spectroscopic equipment	10
Temperature and heat measuring instruments	6
Test Tubes	26
Viewing and observing instruments and accessories	4
Weight measuring instruments	7

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.